

RASPBERRY PLANT NAMED 'PS-1703'

CROSS-REFERENCE TO RELATED APPLICATION

This application claims the benefit of U.S. Provisional Application No. 60/395,102, filed July 9, 2002.

5 CLASSIFICATION

The variety is botanically known as *Rubus idaeus*.

VARIETAL DENOMINATION

The new raspberry plant has the varietal name of 'PS-1703'.

BACKGROUND OF THE INVENTION

10 The present invention relates to a new and distinct fall bearing raspberry variety designated as 'PS-1703'. This new variety is a result of a controlled cross between 'PS-737' (U.S. Plant Patent No. 8,639) and 'PS-1049' (U.S. Plant Patent No. 10,142).

The seedling resulting from the aforementioned cross was selected from a controlled breeding plot near Watsonville, California. After its selection, the new variety was further
15 asexually propagated in Monterey County and Santa Cruz County, California by dormant canes, roots and non-dormant root shoot cuttings. The new variety was then extensively tested over the next several years in fruiting fields in Monterey County and Santa Cruz County, California. This propagation has demonstrated that the combination of traits disclosed herein as characterizing the new variety are fixed and remain true to type through
20 successive generations of asexual reproduction.

BRIEF SUMMARY OF THE INVENTION

'PS-1703' is primarily adapted to the climate and growing conditions of the central coast of California. This region provides the necessary year-round temperatures required for it to produce and maintain a strong vigorous plant with consistent fruit production from July
25 through November on primocanes and in the ensuing year from May through July on the floricanes. The nearby Pacific Ocean provides the needed humidity and moderate

temperatures to maintain fruit quality during the production months. The new variety possesses the following traits in combination distinguishing it from other known and closely related commercial varieties in the region. The varieties which we believe to be most closely related to 'PS-1703' are 'PS-1070' (U.S. Plant Patent No. 11,073), and 'PS-1049'.

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COMPARISON TO SIMILAR VARIETIES

In comparison to the similar variety 'PS-1049', 'PS-1703' differs by the following combination of characteristics. 'PS-1703' fall fruit production begins earlier with heavier July-August production as compared to 'PS-1049'. Floricane fruit production is typically heavier in May yet lighter in July as compared to 'PS-1049'. Primocanes are slightly darker green in color, with stronger anthocyanins than 'PS-1049'. Primocanes are also typically shorter in height with shorter laterals than 'PS-1049'. Thorns are slightly shorter in length yet more abundant along the cane than 'PS-1049'. The foliage of 'PS-1703' is slightly darker green in color, smaller in size with a much longer than broad length to width ratio as compared to 'PS-1049'. Leaves tend to be more convex in cross-section as compared to 'PS-1049'. 'PS-1703' has nearly always 5 leaflets per leaf as compared to 'PS-1049' which tends to be nearly equally 3 to 5 leaflets per leaf. Leaf shape of 'PS-1703' tends to be mostly oblique to lobed while 'PS-1049' tends to be more cordate in shape. Anthocaynin coloration on the petiole of 'PS-1703' is much stronger as compared to 'PS-1049'. The fruit of 'PS-1703' tends to be more uniformly shaped, stronger in gloss yet slightly weaker in skin firmness than 'PS-1049'. Druplets are slightly larger in size and more evenly distributed around the berry.

In comparison to the similar variety 'PS-1070', 'PS-1703' differs by the following combination of characteristics. 'PS-1703' primocane fruit production exceeds that of 'PS-1070' while floricane production is similar. Primocanes are slightly darker green in color producing a stronger waxy coat with slightly stronger anthocyanins than 'PS-1070'. Primocanes are also typically taller in height, larger in diameter with more and longer laterals than 'PS-1070'. The foliage of 'PS-1703' is slightly darker green in color, smaller in size with a much longer than broad length to width ratio as compared to 'PS-1070'. Leaves tend to be more convex in cross-section as compared to 'PS-1070'. 'PS-1703' has nearly always 5

leaflets per leaf as compared to 'PS-1070' which tends to have nearly always 3 leaflets per leaf. Leaf shape of 'PS-1703' tends to be mostly oblique to lobed while 'PS-1070' tends to be more cordate in shape. Petioles of 'PS-1703' have stronger anthocyanins with more thorns as compared to 'PS-1070'. The fruit of 'PS-1703' is darker in color, larger in size and more
5 uniformly conic in shape. Fruit skin is slightly weaker, glossier with better overall appearance ratings than 'PS-1070'. Druplets are slightly larger in size and more evenly distributed around the berry.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying color photographs show typical specimens of the new variety at various stages of development as nearly true as it is possible to make in color reproductions. The depicted plant and plant parts were approximately 6 to 9 months old:

5 Fig. 1 is a photograph of fruit taken in the month of June;

 Fig. 2 is a photograph showing typical fruit characteristics taken in the month of September;

 Fig. 3 is a photograph showing typical leaf characteristics taken in the month of August;

10 Fig. 4 is a photograph of primocane foliage taken in the month of June; and

 Fig. 5 is a photograph showing typical primocane and flower characteristics taken in the month of September.

DETAILED BOTANICAL DESCRIPTION

The following description of 'PS-1703' unless otherwise noted, is based on observations of plants growing in Watsonville, California. These measurements and ratings were taken from plants dug from a nursery located in Monterey County, California during the middle of November and planted approximately 3 to 4 weeks later in Watsonville, California. The approximate age of the observed plants were 8 to 9 months old. Yield observations and fruit quality characteristics are averaged from data collected during the 1998 through 2002 production seasons. The phenotypical descriptions, measurements and color designations stated for the new variety may vary, depending upon variations in environmental factors, including weather (temperature, humidity and light intensity), day length, soil type, location and cultural conditions. 'PS-1703' has not been observed under all possible environmental conditions. Color terminology where noted follows the Munsell Book of Colors, Munsell Color, Baltimore, Maryland (1976).

FRUIT CHARACTERISTICS

Table 1

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 1998 - 2002 average market fruit yield and fruit size characteristics of 'PS-1703' with standards from Watsonville, California.

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Character	'PS-1703'	'PS-1049'	'PS-1070'
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Primocane Yield July - August mean (gm/pl)	942	512	860
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Primocane Yield Season Total mean (gm/pl)	1681	1721	1510
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Florican Yield May mean (gm/pl)	203	45	189
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Florican Yield July mean (gm/pl)	510	856	390
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Florican Yield Season Total mean (gm/pl)	1674	1740	1613
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Primocane Fruit Size mean (gms)	2.7	2.8	2.4
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Florican Fruit Size mean (gms)	2.5	2.5	2.2
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 Fruit was harvested from July through October (primocanes) and May through July (floricanes).

Table 2

5	Comparison of mature fruit characteristics of 'PS-1703', with standards from Watsonville, California, September 18, 2002			
	Character	'PS-1703'	'PS-1049'	'PS-1070'
10	Munsell Color Range mature fruit	5R 3/10 to 3/8	5R 3/6 to 3/8	7.5 R 4/10 to 3/10
	Fruit Length mean (cm)	2.3	2.2	1.8
15	Fruit Width mean (cm)*	2.1	2.0	1.8
	Fruit Length/Width Ratio	1.1	1.1	1.0
20	Calyx Diameter mean (cm)	2.6	2.6	2.4
	Druplets/Berry mean	62	79	62
25	Seed Weight mean (mgs)	1.5	1.3	1.4
30	* Width is measured across the widest part of the berry, typically across the shoulders			

Table 3

5 Comparison of 1999 - 2002 primocane fruit quality characteristics of 'PS-1703' with Standards from Watsonville, California.*

Character	'PS-1703'	'PS-1049'	'PS-1070'
10 Skin Firmness	8.1	8.7	8.3
Fruit Appearance	8.1	8.0	7.8
15 Fruit Gloss	8.6	7.6	7.8

* Results are averaged from 4 years of replicated fruit quality test performed from August through October 1999 - 2002.

Ratings are based on a scale from 1-10; the higher the rating, the stronger the skin and more attractive and glossy the berry.

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FRUIT:

Size: -- medium

Ratio of length/width: -- slightly longer than broad

Predominant shape: -- conical

25 *Color of mature fresh fruit: -- medium red*

Evenness of color: -- even

Glossiness: -- strong

Adherence of recepticle: --very weak to weak

Firmness of flesh: -- very firm

30 *Firmness of skin: -- firm*

Recepticle size: -- medium to medium-large

Core cavity size: -- medium to medium-large

Druplet size: -- medium to small

Druplet arrangement around the berry: --even

35 *Primocane time of fruiting: -- early*

Floricanne time of fruiting: -- medium to early

Type of bearing: -- everbearing

PLANT CHARACTERISTICS

Table 4

5	Comparison of mature cane characteristics of 'PS-1703' compared with standards from Watsonville, California.			
10	Character	'PS-1703'	'PS-1049'	'PS-1070'
15	PRIMOCANE August 31, 2002			
15	Munsell Color Range	7.5GY 6/2 to 6/4	5GY 7/4 to 6/4	5GY 6/6 to 7/6
	Length mean (m)	1.7	1.9	1.4
20	Lateral Length mean (cm)	40.3	67.8	24.1
	Basal Diameter mean (mm)	13.0	12.8	11.5
25	Canes/Crown	2.5	2.4	3.2
	Cane Diameter central 1/3 mean (mm)	11.0	11.4	9.0
30	Fruiting Laterals per cane	16.5	16.3	13.6
35	% of cane fruiting	36.3	40.5	37.7
	Internode length central 1/3 mean (cm)	4.5	5.1	4.3
40	Thorn Length central 1/3 mean (mm)	1.7	2.3	1.8
45	Thorns/cm central 1/3 mean	5.7	3.3	4.2
50	FLORICANE May 30, 2002			
	Munsell Color Range	5YR 4/4 to 4/6	5YR 4/4 to 4/6	5YR 5/4 to 6/4
55	Length mean (m)	1.2	1.2	N/A

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Plant:

- Habit:* -- semi erect to erect
Density: -- medium
Size: -- medium
5 *Productivity:* -- high

Primocanes/Floricanes:

- Primocane color:* -- medium to light green yellow
Primocane anthocyanin coloration: -- medium to strong
10 *Primocane thorn density:* -- medium
Floricane color: -- medium brown
Production of waxy coat: -- medium to strong

Young Shoots:

- 15 *Number:* -- medium to many
Anthocyanin coloration: -- absent to very weak
Thorn density: -- moderate to strong

Thorns:

- 20 *Color (tip):* -- 7.5RP3/6 dark to medium reddish purple
Color (base): -- medium to light green yellow
Texture: -- rigid
Attitude of the tip: -- horizontal

FOLIAGE CHARACTERISTICS

Table 5

5	Comparison of mature leaf characteristics of 'PS-1703', compared with standards from Watsonville, California, August 15, 2002			
10	Character	'PS-1703'	'PS-1049'	'PS-1070'
15	Munsell Color Range (upper surface)	7.5GY 2/4 to 3/4	7.5GY 3/4 to 4/4	5GY 3/4 to 3/6
15	Munsell Color Range (lower surface)	5GY 6/2 to 7/2	5 GY 5/4 to 6/4	5GY 5/4 to 6/4
20	Terminal Leaflet length mean (cm)*	13.1	14.9	14.2
20	Terminal Leaflet width mean (cm)*	6.4	10.2	9.7
25	Terminal Leaflet ratio (L/W)	2.0	1.5	1.5
30	Petiole Length mean (cm)	6.7	7.2	5.7
30	Petiole Width mean (mm)	3.3	3.2	3.1
35	Rachis Length** mean (cm)	3.8	4.5	4.1
35	Thorns/Petiole mean	19.8	18.6	12.3
40	Stipule Length mean (mm)	8.7	10.1	8.8
45	Lateral Leaflet basal pair length mean (cm)	10.9	12.1	10.8
50	Lateral Leaflet basal pair width mean (cm)	6.3	7.2	7.0

* Terminal leaflets measurements are taken from a 3 leaflet leaf.

** Rachis length = length between the terminal leaflet and the adjacent lateral leaflets of a 3 leaflet leaf

Foliage:

Color of upper surface: -- medium to dark green

Color of under side:-- light to pale grey green

Shape in cross section: -- slightly concave to slightly convex

5 *Arrangement:* -- compound

Relief between veins: -- medium to medium strong

Glossiness: -- medium

Number of leaflets/leaf:-- seldom three mostly five

10 Terminal Leaflet:

Size: -- medium to small

Shape: -- oblique to lobed

Length/width ratio: -- much longer than broad

Shape of base: -- acute

15 *Shape of tip:* -- acuminate

Margins: -- biserrate

Lateral Leaflet:

Size: -- medium to small

20 *Shape:* -- oblique

Overlapping: -- free

Orientation: -- opposite

Shape of the base: -- acute to oblique

Shape of the tip: -- acuminate

25 *Margins:* -- biserrate

Rachis length: -- medium

Petiole:

Texture: -- medium

30 *Thorn orientation:* -- errect

Anthocyanin coloration: -- medium to strong

Stipule orientation: -- erect

FLOWERS

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Table 6

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Comparison of mature flower characteristics of 'PS-1703', compared with standards from Watsonville, California, August 23, 2002

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Character	'PS-1703'	'PS-1049'	'PS-1070'
Calyx Diameter mean (cm)	2.2	2.6	2.1
Petal Length mean (mm)	6.6	6.9	6.6
Petal Width mean (mm)	3.6	3.5	2.9
Petal Ratio (L/W)	1.8	2.0	2.3
Petals/Flower mean	5.4	5.1	5.0
Sepals/Flower mean	5.4	5.0	5.1

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Flowers:

Color: -- white

Size: -- medium to small

Size of calyx relative to corolla: -- larger

Relative position of petals: -- free

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Petal length/width ratio: -- longer than broad to much longer than broad

PEST REACTIONS

This new variety may not be resistant to any of the known insects, diseases or viruses common in California. It is known to be moderately susceptible to the two-spotted spider mite. It is also known to be moderately susceptible to powdery mildew and moderately
5 resistant to yellow rust. The susceptibility of the new variety to any of the virus complexes of California has not been determined.